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Under Article 16 of Indonesia's Telecommunications Law No. 36 of 1999, every telecommunications network operator and every telecommunications service operator is obliged to contribute to universal service. This contribution may take the form of service build-out or other types of compensation. The English translation of the explanatory note to Article 16 goes on to say that "other compensation is assigned through interconnection costs." To date, the universal service obligation has been the responsibility of PT Telkom and its KSO partners, which hold the exclusive right to provide fixed domestic telecommunications service in Indonesia. As Indonesia moves towards a more competitive market, however, the universal service obligation will need to be redefined. This must be done in a transparent manner if investors are to fully understand their obligations, and if Indonesia is to attract investment into the telecommunications sector. During the transition to a more competitive market, several issues should be addressed.

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A UNIVERSAL SERVICE PROGRAM FOR INDONESIA (The Competitive Access Model)

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25 October 2001

Under Article 16 of Indonesia's Telecommunications Law No. 36 of 1999, every telecommunications network operator and every telecommunications service operator is obliged to contribute to universal service. This contribution may take the form of service build-out or other types of compensation. The English translation of the explanatory note to Article 16 goes on to say that "other compensation is assigned through interconnection costs."

To date, the universal service obligation has been the responsibility of PT Telkom and its KSO partners, which hold the exclusive right to provide fixed domestic telecommunications service in Indonesia. As Indonesia moves towards a more competitive market, however, the universal service obligation will need to be redefined. This must be done in a transparent manner if investors are to fully understand their obligations, and if Indonesia is to attract investment into the telecommunications sector.

During the transition to a more competitive market, several issues should be addressed:

Developing a Strategic Plan for Telecommunications Regulatory Policy. The Government needs to develop a strategic plan for the phased introduction of competition into the Indonesian telecommunications market. This plan should lay out in broad terms the Government's strategy for major regulatory issues, including licensing requirements, the number of operators, and compensation for loss of exclusivity. It should also simultaneously address pricing, interconnection, and universal service. Such a strategic plan would lay out a vision of the telecommunications market in Indonesia and thereby facilitate investment. It would also make the recommendations below on universal service more likely to succeed.

Build-Out Requirements. Under Indonesia's monopoly environment, universal service obligations are met through build-out requirements that are imposed on PT Telkom and its KSO partners.² Such requirements are in effect a tax on operators, and suffer from several problems:

- 1) In using build-out requirements to achieve universal service, the Government is in effect taxing one part of the telecommunications network to provide investment funds for another. As noted in Appendix 1, it is unlikely that the network can generate enough tax revenues from within itself to overcome Indonesia's low penetration rate for telephone service. This is the case whether the tax is explicit, as in the Appendix, or implicit, as with build-out requirements.

¹ The Partnership for Economic Growth (PEG) is a United States Agency for International Development (USAID)-funded Project with the Government of Indonesia. The views expressed in this report are those of the authors and not necessarily those of USAID, the U.S. Government or the Government of Indonesia.

² Build-out requirements for universal service should not be confused with a requirement that scarce public resources (e.g. spectrum) be utilized as part of a licensing agreement. Such a requirement might be imposed in order to prevent speculation in licenses.

2) Build-out requirements lack transparency. At one extreme, the entire cost of the build-out, including most operating costs, might need to be cross-subsidized by other profitable parts of the network. This might be the case in marginal land areas with low population density. At the other extreme, the build-out might be so profitable that it will occur anyway without a subsidy. Since the tax incidence of the build-out depends on so many different factors, it is extremely difficult to estimate the “implied” tax and to ensure that it is levied equally on all operators. There is even less transparency if the build-out is financed by access deficit charges that are paid to an incumbent operator (see below).

3) In a competitive environment, the ability to provide cross-subsidies from one part of the network to another will eventually be eroded.

For these reasons, it is recommended that Indonesia eliminate build-out requirements as a means to achieve universal service.

Access Deficits. As noted above, build-out requirements can give rise to cross-subsidies between profitable and unprofitable parts of the network. But even if build-out requirements are eliminated, PT Telkom may argue that it is still losing money on its local network because of past universal service obligations. In order to cover these losses, Telkom will argue that an access deficit charge should be imposed on top of interconnection fees. Article 16 of Law 36 appears to make reference to such a possibility.

The access deficit is one example of where the Government needs to have a strategic plan that simultaneously addresses the access deficit, rebalancing, and interconnection. As noted in Appendix 2, monopoly incumbents typically argue for a price structure that squeezes competitors between low retail prices and high charges for interconnection and the access deficit. Although incumbents may use universal service to justify such a price structure, their real objective is to prevent competitors with lower costs from entering the market and undercutting prices. The Appendix also argues that the access deficit is an accounting artifact that is not equivalent to universal service.

We therefore recommend that if an access deficit charge is imposed, it should be made clear that it is a temporary tax that will be phased down over a fixed timeframe. Furthermore, we recommend that the charge be imposed only on interconnection services that do not involve call termination.

PROPOSAL

The Competitive Access Model for Universal Service

We recommend that the Government develop a new universal program which we call the “Competitive Access Model for Universal Service.” The program would be administered by a Special Board for Universal Access (SBUA) and would be financed by a tax on the gross revenues (net of interconnection charges) of all operators. Funds from this tax would be used to finance universal service projects that are auctioned by the Board to the private sector. These projects would focus on bringing basic telecommunications service to under served areas of the country. Projects could be proposed by almost anyone, including local and regional authorities, neighborhood associations, telephone operators, and the general public. Winning projects would be those requiring the smallest subsidy from the fund.³

The universal program would be designed to reflect several aspects of the Indonesian telecommunications market.

First, it is better public policy to fund universal service out of general tax revenues than special taxes. But because of the financial crisis and Indonesian Law, Indonesia’s program must likely rely on revenues generated from within the telecommunications sector.⁴ As noted in the Appendix, *taxing telecommunications to build-out telecommunications is unlikely to have much impact on access in Indonesia*. There is not enough money in the sector. As a result, the Competitive Access Model uses universal service subsidies to help generate private investment in the sector. The program relies on the private sector for major decisions regarding technology, and uses a bidding process to ensure the most efficient use of public resources. In Chile and Peru, where similar programs have operated for several years, the ratio of private sector investment to subsidy was six to one.⁵ Many universal service projects required no subsidy at all.

Second, many universal service programs have a social objective to bring telecommunications services to the poorest segments of the population. In Indonesia, the telecommunications penetration rate is less than 3 percent. Assuming that this 3 percent generally comprises high income groups, a universal service program targeted at the poorest segments of the population would leave unserved a vast number of people with incomes in between. *We therefore recommend that Indonesia’s program initially concentrate on providing access -- whatever the level of income in the region proposed for universal service.*

Third, there has been much discussion of the development of telecenters in Indonesia. Including telecenters in the universal service program might add considerably to its cost. *We therefore recommend that the program be limited to the provision of telephone lines in under*

³ See Appendix 3 for a comparison of the Competitive Access Model proposed here and other more centrally planned USO programs.

⁴ The Government could request that donors also place money in the fund.

⁵ Although we have coined the name “Competitive Access Model” for the program proposed here, the CAM is nearly identical to those sponsored by the World Bank in Peru and Chile. In August of 2000, Brazil also introduced such a program (financed by a 1% tax on the gross income of each operator). One difference between the Latin American programs and the program proposed here is that the Latin American programs appear to have a broader range of social objectives.

served areas. This would not prevent providers of universal service from offering more enhanced services. In fact, this would be encouraged and such services would be automatically licensed for winning bidders. Later, after Indonesia's penetration rate rises to a more acceptable level, the program could be expanded to include some of the services often associated with telecenters.⁶

Implementation Procedures for the Competitive Access Model

Below are some of the broad steps that need to be taken in order to implement the Competitive Access Model:

1. Establish a Special Board for Universal Access (SBUA) to administer the universal service fund.
2. Establish a financial system for collecting a 1% levy on revenues net of interconnection fees from telecommunications operators.
3. Define the types of projects (e.g. a pay phone in a village with voice mail capability) that will qualify for universal service funding and performance criteria for the service.
4. Determine whether universal service operators will be allowed to provide local switching and compete with the existing local loop. We recommend that this be permitted since there might be significant economies of scale from allowing bidders to serve commercially viable areas in competition with Telkom. This could significantly reduce the need for subsidies.
5. Lay out licensing, interconnection, and other requirements of universal service operators:
 - Establish an interconnection regime under which universal service operators can terminate calls on the PSTN at prices based on the PSTN's forward-looking, long-run incremental cost.
 - Similarly, universal service operators must provide call termination for the PSTN at the same prices.⁷
 - Specify the regulated price for services under the program. Universal service operators are contracted to provide service at that price for 10 years.
 - There are no restrictions on technology.
 - Any required spectrum is provided free with the license.
 - All universal service licenses are nonexclusive and are valid for 30 years.
 - Universal service operators are permitted to provide enhanced telecommunications services at unregulated prices.

⁶ This was done in Peru.

⁷ Telkom has apparently agreed to allow USO operators to act as its "agents" during the period in which it holds the exclusive right to provide local service in Indonesia. Lines built by the USO operator would be allowed to connect to the Telkom switch on a Sender Keeps All (SKA) basis. After exclusivity expires, the SKA arrangement would convert to interconnection pricing at cost-based rates.

6. Request universal service proposals from local governments, NGOs, private institutions, etc.
7. Group proposals into projects for universal service funding. We recommend that projects be grouped into fairly large areas so as to permit economies of scale and lower subsidies.
8. Determine the maximum subsidy that can be granted for each project.
9. Auction the universal service projects. The winning projects are those which bid the lowest subsidy. This subsidy could include the discounted present value of the future operating subsidies needed to keep the project viable for 10 years.⁸
10. Provide a one-time subsidy payment to the winning bidder after the project is built.
11. The SBUA monitors all projects for compliance with bid documents and service requirements.
12. The SBUA is itself subject to independent audits on the management of universal service funds.

⁸ This is one area where the Competitive Access Model differs from other USO programs. In the United States, for example, operational subsidies are provided on an annual basis. In the CAM, the subsidy is paid only once, but can include the discounted present value of the bidder's estimate of future operational subsidies. One result is that the data requirements and administration costs for managing the USO fund should be much lower under CAM.

APPENDIX 1: TAX REVENUES FOR FUNDING UNIVERSAL SERVICE

Under Law 36, the Government may impose a tax on telecommunications operators and service providers in order to fund a universal service program. In the table below, we estimate the revenues that would be generated by a 1% tax on the gross revenues of Indonesia's telecommunication operators -- PT Telkom, PT Indosat, and the cellular industry. Since interconnection fees are transfer payments between operators, the interconnection fees paid by each operator are netted out of gross revenues in order to prevent double counting.

Financing Universal Service (Year 2000)
(billion rupiah)

	Telkom	Indosat	Cellular	Total
Gross Revenues	10959	2449	696	14104
Interconnection Fees	1070	744	139	1953
Net Revenues	9889	1705	577	12151
USO Tax Revenues Per 1% Tax	98.9	17.1	5.8	121.5

Source: ABN Amro for revenues and interconnection costs. Cellular interconnection fees are assumed to be 20% of gross revenues.

Accordingly, every one percentage-point of tax generates 121.5 billion rupiah in annual revenues for the universal fund. Assuming that a line costs 10 million rupiah (\$1000 per line at today's exchange rates) and that the fund is used to finance the entire cost of new lines, **12.1 thousand** new lines could be funded by the universal service program each year. With some seven million lines overall, this represents an increase of only 0.17 percent per annum for every one percentage-point of tax. The tax rate would have to be around 10 percent just to keep pace with Indonesia's population growth. But such a tax could reduce profits in the telecommunications sector by 50% or more – thus shutting off new investment in the sector.

APPENDIX 2: THE ACCESS DEFICIT AND UNIVERSAL SERVICE

It is important to draw a distinction between “universal service” and the “access deficit.” This is particularly the case when countries begin to introduce competition into their markets and develop policies on universal service, tariff rebalancing and interconnection.

The Competition Threat to Universal Service. As countries begin to liberalize their telecommunications sectors, one of the first objections raised by monopoly incumbents is that competition will undermine universal service. Under monopoly, profits from certain services are used to cross-subsidize losses incurred by others. The loss-making services are those that need subsidies to make them affordable. The subsidy allows customers to subscribe to telephone service that would otherwise be too expensive. Society benefits because the additional subscribers cause the network to become more valuable to all, and because economic activity is stimulated by more widely available communications.

Incumbents assert that competition is a threat to universal service since new operators will “skim the creme” by only competing in those service segments and geographical areas which are profitable.⁹ Lower prices resulting from competition will erode the revenue sources needed to provide the subsidy. To stay financially viable, therefore, the ex-monopolist must rebalance its price structure by lowering rates in contested markets, and by raising them in loss-making markets.¹⁰ The higher prices make service less affordable, thus threatening universal service.

The Access Deficit Charge. When competition is introduced, the incumbent monopolist will argue that new entrants should bear their “fair share” of the cost of universal service. The incumbent usually equates the cost of universal service with its access deficit, where the deficit is estimated using a “fully distributed cost” accounting framework. This framework results in margins that are large and positive for long distance, but negative for local access. The latter is the access deficit.

Service Category	Local Access	Local Usage	Long Distance 1	Long Distance 2
Revenue	+	++	+++++	+++++
Cost	-----	----	---	—
Margin	-----	---	+++	+++++

There are several ways to deal with the Access Deficit:

- Price Rebalancing: lowering the price of long distance and international services while raising the price of local access and local usage.
- Interconnection Charges: charging interconnection fees for long distance, cellular, and

⁹ The cream-skimming argument assumes old technologies that result in a natural telecommunications monopoly. New technologies, such as broadband and wireless, have reduced network costs and decreased the minimum efficient scale so that cream-skimming arguments no longer apply. These technologies are now being used in many countries to extend the network and undercut incumbents.

¹⁰ The monopolist implicitly assumes that it has a right to maintain its historic revenues.

other services that must connect to the local network. Interconnection fees are typically equal to twice the fully allocated cost of local access plus local usage. The fee is doubled since long distance networks use local access for both call origination and for call termination. This sometimes results in interconnection fees that are even higher than the retail price.

- Access Deficit Charge: Usually, incumbents are not allowed to raise retail prices by the full amount necessary to offset reductions in prices for other services. Because of this, they claim that competitors who use the local access network should pay an access deficit charge on top of interconnection fees.

Since the access deficit charge (ADC) is equivalent to a tax that raises the marginal costs of new entrants, the incumbent has every incentive to make both the ADC and fees for interconnection as large as possible. This raises the floor price for service, and reduces the possibility that competitors with lower cost structures can enter the market and undercut the monopolist's prices. The result is to squeeze competitors between falling retail prices and high charges for interconnection and access deficit, all in the name of universal service.

Measuring the Access Deficit. Measuring the ADC typically relies on the incumbent's accounting system, which uses a "fully distributed costs" (FDC) methodology and equates the access deficit with universal service. However, the FDC methodology uses cost allocations that are non-economic and largely arbitrary.

- The definitions of local access, local usage, and long distance are based on network components, not marketplace products.
- The definitions of local and long distance calls can easily be altered.
- A large number of reasonable but arbitrary cost allocations are possible. For example, the local access network is necessary for a long distance call; so its costs could be allocated to long distance. This would result in a different pattern of profits and losses.

As a result, the access deficit is sometimes loaded with other charges. It has nothing to do with universal service and estimates of the cross-subsidies needed to maintain it are arbitrary.

APPENDIX 3: THE COMPETITIVE ACCESS MODEL(CAM) VERSUS CENTRALLY PLANNED MODEL (CPM) FOR UNIVERSAL SERVICE

(Check mark indicates issues that must be addressed by the program)

Question/Issue	Competitive Access Model (CAM)	Centrally Planned Model (CPM)	Recommendation Under CAM
Define universal service.	√	√	Define universal service as universal access.
What does universal access include?	√	√	Public telephone service for every village. CTC's not included, but could be added in later years.
What technologies?		√	Not needed for CAM. Technologies are chosen by the private sector during the auction.
How to fund?	√	√	Tax on gross revenues minus interconnection charges of network operators.
Amount of tax?	√	√	Small (e.g.1%)
Who manages the fund?	√	√	Special Board for Universal Access (SBUA).
Where is access to be provided?	√	√	Project areas are proposed by local public and private institutions.
Who should install/operate?	√	√	Projects are auctioned. The winners are those that bid the lowest subsidy.
What are universal service targets?		√	Not needed under CAM. Projects can be funded until monies are used up. Unspent monies are rolled over into following years.
Determine monitoring and access provisions.	√	√	SBUA monitors compliance with universal service contracts. The SBUA is subject to independent audits and could report to the Independent Regulatory Body.
Interrelationship between universal service, inter-connection, and rebalancing.	√	√	Develop a strategic plan for the phased introduction of competition.